

CLAIMS

What is claimed is:

1. ~~A call server comprising:~~

(a) a first protocol agent for communicating with a first internet  
5 protocol (IP) telephony device according to a first IP telephony  
protocol;

(b) a second protocol agent for communicating with a second IP  
telephony device according to a second IP telephony protocol;  
and

10 (c) an interworking agent for providing functions usable by the first  
and second protocol agents to communicate with each other  
according to a third protocol, the functions provided by the third  
protocol being a superset of functions provided by the first and  
second IP telephony protocols.

15 2. The call server of claim 1 wherein the interworking agent  
comprises a first interworking agent associated with the first protocol  
agent and a second interworking agent associated with the second  
protocol agent.

20 3. The call server of claim 1 wherein the first protocol agent is a  
media gateway control protocol (MGCP) agent, the first IP telephony  
protocol is MGCP, the second protocol agent is ITU Recommendation  
H.323 agent, and the second IP telephony protocol is H.323.

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the call server of claim 1 which  
 is originating call half functions  
 is terminating call half functions  
 the call server of claim 1 which  
 to provide a connection information  
 by the first and second protocols  
 capabilities and media stream  
 in the first and second protocols

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11. A method for interworking devices that communicate using different internet protocol (IP) telephony protocols, comprising:

- (a) receiving, from a first telephony device, a first message, formatted according to a first IP telephony protocol;
- (b) in response to receiving the first message, receiving a second message, formatted according to a second IP telephony protocol, the second message including at least one of a call identifier, a call number, or a call number extension;

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capabilities description and media stream management information derived from the first message;

(c) transmitting the second message to a second protocol agent; and

5 (d) in response to receiving the second message, generating a third message formatted according to a third IP telephony protocol, the third message including at least one of the media capabilities description and media stream management information derived from the second message.

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12. The method of claim 11 wherein receiving a first message includes receiving a message formatted according to the media gateway control protocol (MGCP) and generating a third message includes generating a message formatted according to ITU Recommendation H.323.

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13. The method of claim 11 wherein receiving a first message includes receiving a message formatted according to the session initiation protocol (SIP) and generating a third message includes generating a message formatted according to ITU Recommendation H.323.

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14. The method of claim 11 wherein receiving a first message includes receiving a first message formatted according to ITU

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of the media stream communication to inactive according to the third  
~~IP telephony protocol.~~

5 18. The method of claim 11 wherein receiving a first message includes receiving a RETRIEVE message from the first telephony device, and generating the second message includes generating a message including a connection information parameter having a mode change value of active.

10 19. The method of claim 11 wherein receiving a first message includes receiving a message including at least one dual tone multifrequency (DTMF) digit value, generating the second message includes mapping the DTMF digit value to a digit information parameter value in the second protocol, and generating the third  
15 message includes mapping the digit information parameter value to a DTMF digit value formatted according to the third IP telephony protocol.

20 20. The method of claim 11 comprising transmitting the third message to a second telephony device configured to communicate according to the third IP telephony protocol.

21. A method for tunneling messages between protocol agents, the  
method comprising:

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(e) transmitting messages containing the media capabilities information and formatted according to the third protocol between the first and second protocol agents.



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28. The computer program product of claim 27 wherein invoking a first protocol agent includes invoking a first protocol agent for performing originating call functions and invoking a second protocol agent includes invoking a second protocol agent for performing terminating call functions.

29. The computer program product of claim 27 comprising, at the first protocol agent, mapping media stream information received from the second protocol agent to the first IP telephony protocol.

30. The computer program product of claim 27 comprising, at the second protocol agent, mapping media stream information received from the first protocol agent to the second IP telephony protocol.

31. The computer program product of claim 27 wherein the first IP telephony protocol is the media gateway control protocol and the second IP telephony protocol is ITU Recommendation H.323.

32. The computer program product of claim 27 wherein the first IP telephony protocol is ITU Recommendation H.323 and the second IP telephony protocol is Bellcore Q.931.

33. The computer program product of claim 27 wherein the first IP telephony protocol is the session initiation protocol and the second IP telephony protocol is IP Recommendation H.323.

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